

# EUROPEAN PATENT OFFICE

## Patent Abstracts of Japan

PUBLICATION NUMBER : 63075553  
PUBLICATION DATE : 05-04-88

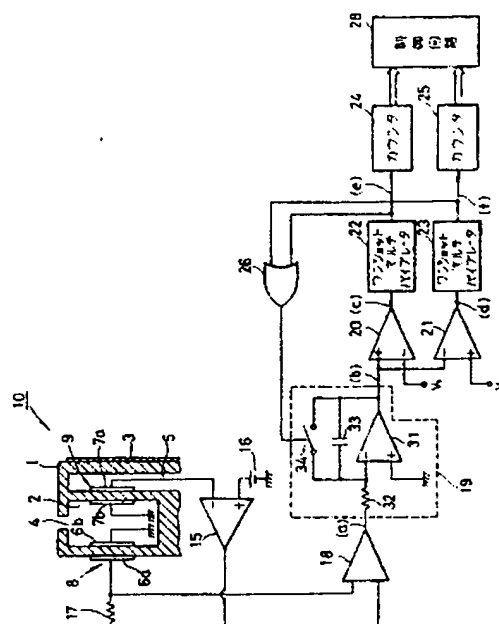
APPLICATION DATE : 18-09-86  
APPLICATION NUMBER : 61221208

APPLICANT : HONDA MOTOR CO LTD;

INVENTOR : MIENO TOSHIYUKI;

INT.CL. : G01N 27/46 G01N 27/58

TITLE : OXYGEN CONCENTRATION  
DETECTOR



ABSTRACT : PURPOSE: To convert an oxygen concn. to a digital signal and to detect said concn. with high accuracy by passing current to an oxygen pump element according to the oxygen concn., generating 1st and 2nd pulses according to the positive and negative voltages of this time and counting respective pulses.

CONSTITUTION: An exhaust gas stagnating chamber 2 is disposed to the inside of a solid electrolyte member 1 and an atm. reference chamber 5 is provided to the outside thereof. A battery element 9 and the oxygen pump element 8 are disposed thereto. The voltage is generated according to a lean or rich of air to fuel ratio by the element 9. The voltage is impressed as the voltage of a positive or negative level via a differential amplifier 15 and a current detecting resistor 17 to the pump element 8 to pass current thereto, by which the pumping out or in of the oxygen is executed. The voltage across the resistor 17 is inputted to an integration circuit 19, the output voltage of which is converted to the 1st and 2nd pulses by oneshot multivibrators 22, 23. These pulses are counted by counters 24, 25. The rich or lean is judged by whether the count values of the counters 24 and 25 are large or small. Since the number of the pulses generated is counted, the oxygen concn. is detectable with high accuracy without using an A/D converter.

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PUBLICATION NUMBER : 61118653  
PUBLICATION DATE : 05-06-86

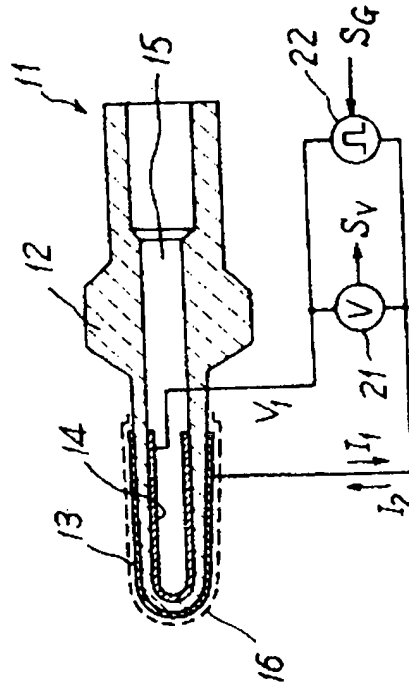
APPLICATION DATE : 14-11-84  
APPLICATION NUMBER : 59240095

APPLICANT : NGK INSULATORS LTD;

INVENTOR : MIZUTANI YOSHIHIKO;

INT.CL. : G01N 27/46 // G01N 27/58

TITLE : METHOD FOR CONTROLLING  
CURRENT OF ELECTROCHEMICAL  
ELEMENT



ABSTRACT : PURPOSE: To enhance the response of a measuring signal, by forcibly excluding the component remaining in the vicinity of the surface of a measuring electrode when an atmosphere of gas to be measured changed from lean to rich or from rich to lean.

CONSTITUTION: The electromotive force  $V_1$  generated between a measuring electrode 13 and a reference electrode 14 is detected by a voltage detection circuit 21 and this detection signal  $S_1$  is fed back to the engine control apparatus mounted to a car. A pulse current generation circuit 22 generates a pulse current corresponding to an air/fuel ratio altering signal SG not shown in the drawing. That is, when the content of the signal SG changes from lean to rich, a relatively large pulse current  $I_1$  is flowed from the reference electrode 4 toward the measuring electrode 13 only for a definite time and oxygen is taken out from the measuring electrode 3 to the reference electrode 4. When the content of the signal SG changes from rich to lean, a pulse current  $I_2$  is flowed to the direction reverse to that of the above mentioned current  $I_1$  and oxygen is taken in the measuring electrode 13 from the reference electrode 14.

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